

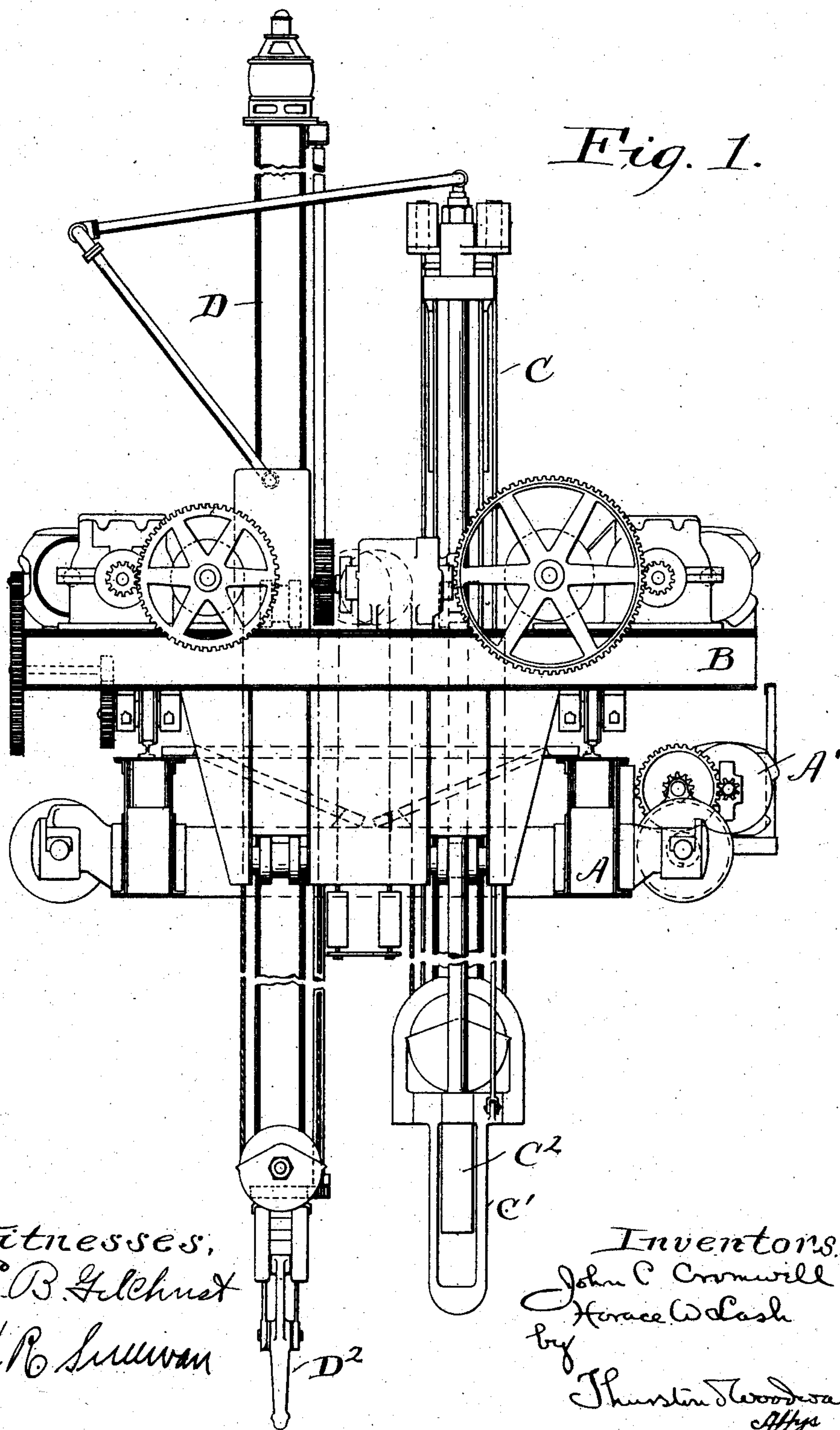
No. 865,240.

PATENTED SEPT. 3, 1907.

J. C. CROMWELL & H. W. LASH.
COMBINED INGOT STRIPPER AND CHARGER.

APPLICATION FILED FEB. 14, 1906.

3 SHEETS—SHEET 1.



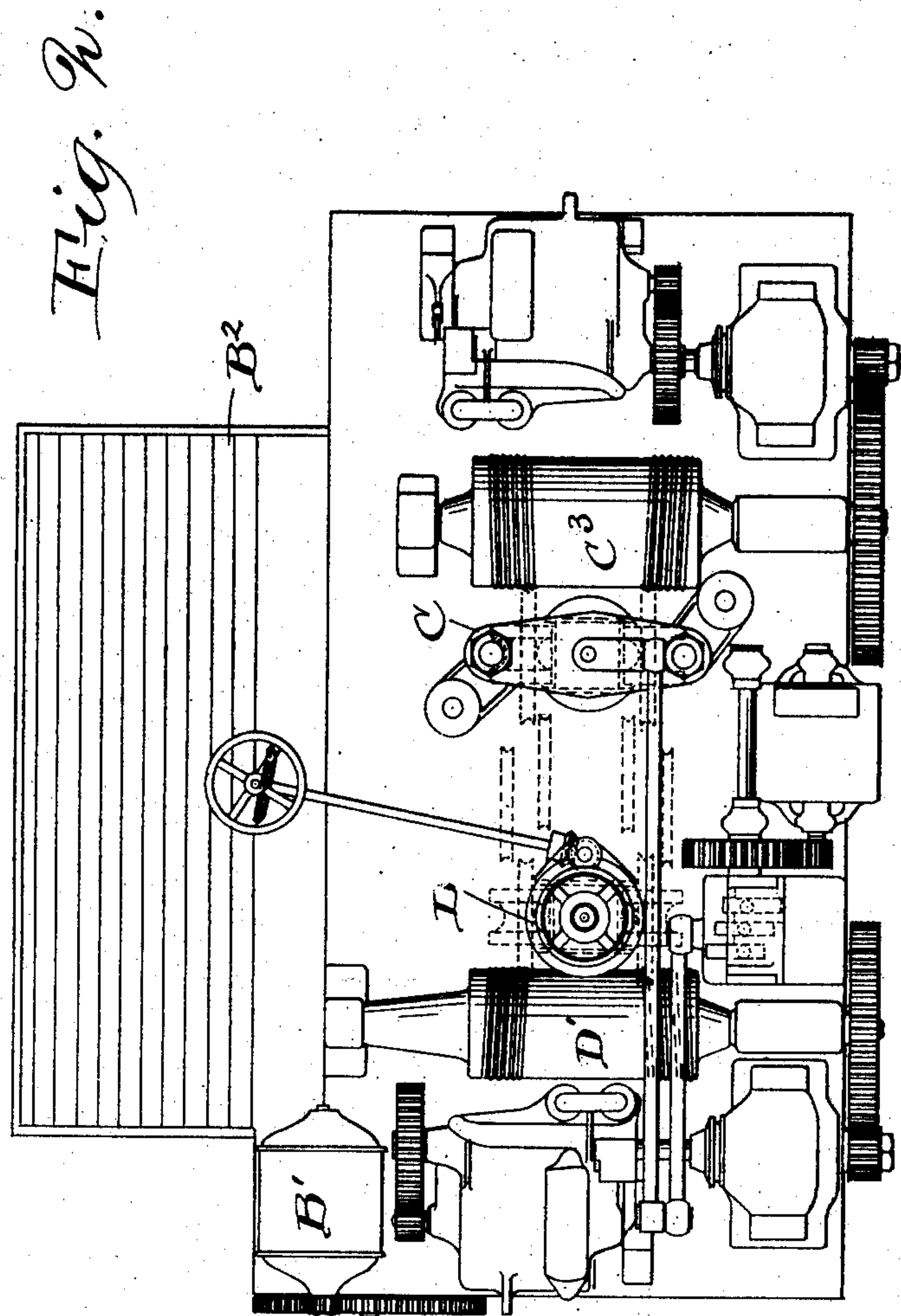
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Witnesses,
E. B. Gilchus
H. B. Sullivan

Inventors
John C. Cromwell
Horace W. Lash
by
Thurston Woodward
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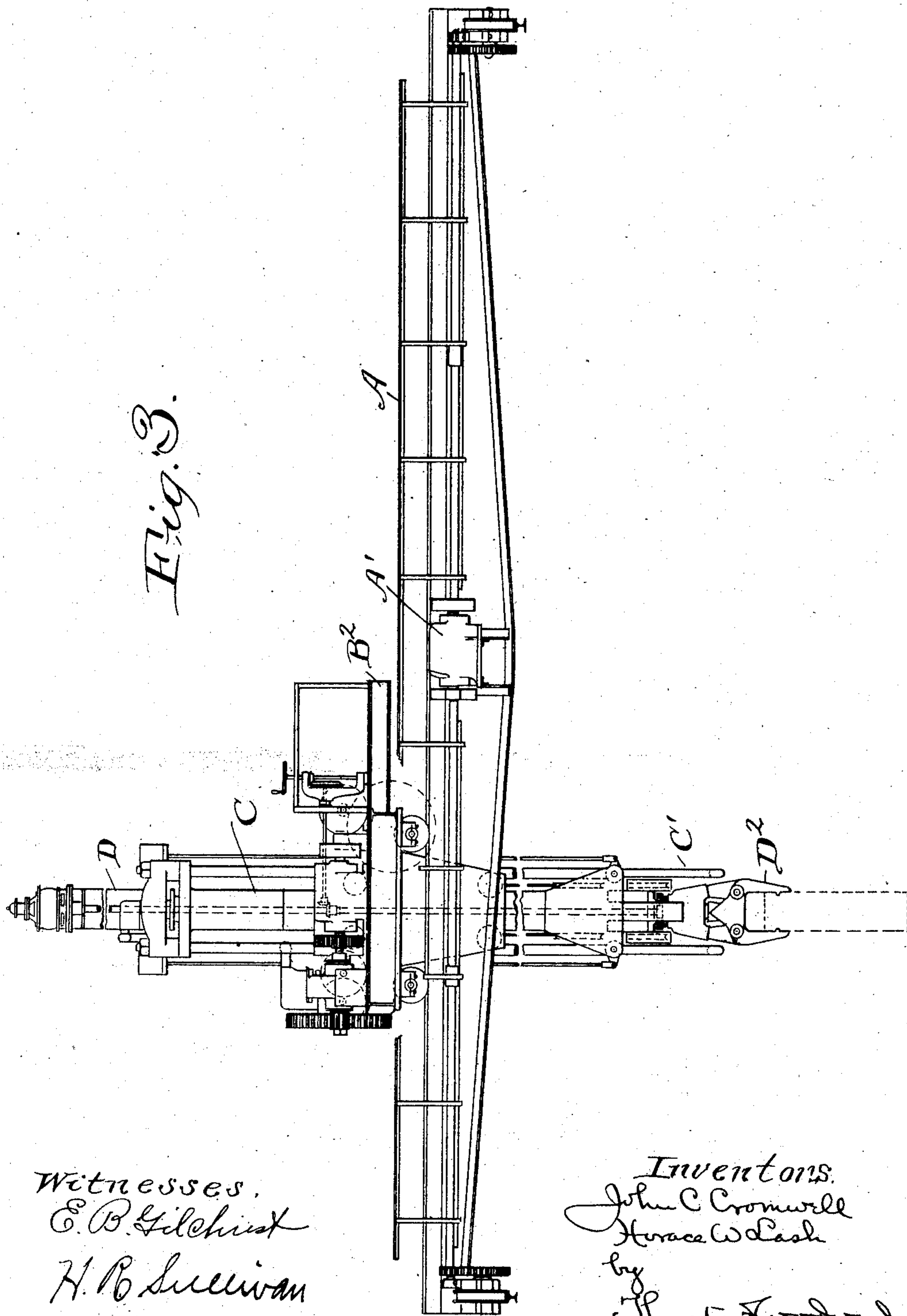
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UNITED STATES PATENT OFFICE.

JOHN C. CROMWELL AND HORACE W. LASH, OF CLEVELAND, OHIO, ASSIGNORS TO THE GARRETT-CROMWELL ENGINEERING COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

COMBINED INGOT STRIPPER AND CHARGER.

No. 865,240.

Specification of Letters Patent.

Patented Sept. 3, 1907.

Application filed February 14, 1906. Serial No. 300,967.

To all whom it may concern:

Be it known that we, JOHN C. CROMWELL and HORACE W. LASH, both citizens of the United States, and both residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Combined Ingot Strippers and Chargers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

10 The object of the present invention is to provide metal handling mechanism which may serve the double purpose of stripping ingots from their molds and subsequently charging them into the soaking pit or heating furnace.

15 Heretofore it has been customary in most steel plants to provide two sets of apparatus for this purpose, requiring two crews of men to operate them. The use of these two separate and independent pieces of apparatus not only is the source of considerable expense, but entails undesirable necessities in installation. A further and important objection to the use of the separate apparatus resides in the fact that considerable time is necessarily lost between the stripping of the ingot from the mold and the transfer of the former to the soaking pit, due to shifting the machinery or switching the ingot carrying cars. During this time the ingots lose a great amount of heat, which is a distinct disadvantage, as is known to those skilled in the art. It has been proposed to overcome these defects by the use of new devices in which gripping jaws used for lifting and charging the ingots into the soaking pits are mounted upon or integral with the stripping tongs. With these arrangements the gripping attachments must be thrown into and out of operation by hand each time they are used, or else the tongs are operated by a more or less complex mechanism, which must be accurately constructed so as to cause the tongs to approach each other within different limits, according to whether they act as lifting tongs for the ingot mold or as gripping jaws for the ingot. We have, however, invented a combination in which the objections of the double installation are obviated, and which is free from complexity of motor connection present in the double acting tongs just mentioned.

45 Referring to the accompanying drawings which illustrate our device, Figure 1 is an end elevation showing a trolley carrying an ingot stripper and a charging device mounted thereon, the trolley being in turn mounted to run transversely of a traveling crane. Fig. 2 is a plan view of the trolley carriage on which the ingot stripping and charging mechanism are mounted. Fig. 3 is a side view of the mechanism showing the gripping jaws of the charging mechanism lowered to position to grasp an ingot.

Referring to Fig. 1, it will be seen that the traveling crane A is of the conventional type provided with a motor A' for causing it to move backward and forward across the plant.

Mounted upon the crane is the trolley carriage B having a motor B' for effecting transverse movement, under control from the operator's platform B².

At one side of the trolley carriage is mounted an ingot stripper C of any preferable type,—that illustrated being the conventional hydraulic stripper. This stripper has the usual tongs C' for catching the ears of the ingot mold, and a centrally disposed plunger C² for exerting a downward thrust upon the ingot as the tongs are lifted. A drum C³ operated by an electric motor raises and lowers the stripping mechanism at the will of the operator.

On the opposite side of the trolley carriage, and preferably in transverse alinement with the stripper, is the ingot carrying or charging device D. This device also has a lifting drum D' for raising or lowering it according to the requirements of its use, and is under control in the usual manner so that it is capable of being rotated in either direction whenever desired. This device does not differ in any essential particular from those known to the art,—the main characteristic being that it is so mounted as to be capable of control by the same operator controlling the stripper. At the lower end of the charger are the gripping jaws D' by which the ingot is gripped and moved to the heating furnace, after being removed from the mold. It is preferred to have the charger rigged in transverse alinement with the stripper. It will be evident that by this arrangement, after the mold is stripped off, the trolley may be moved over an adjoining car which receives the empty molds, and brought back to the point where the charger is in exact vertical alinement with the stripped ingot, without any necessity for working the crane back and forth to secure such vertical alinement. If, however, the stripper and charger were not in transverse alinement the difference between them would have to be made up each time by the movement of the crane.

We propose to install any type of stripper or charging device which we find desirable for the particular plant in which they are to be placed. It is not the detail structure of either of these devices which we desire to claim in this application, but the broad generic idea of having the stripping and charging devices mounted upon the same traveling carriage. As above pointed out, this combination is a distinct and marked improvement over those installations in which separate machines are used for stripping and charging. With our arrangement there is no necessity for choosing either of the alternatives heretofore presented to the workmen, of either waiting until the stripper is through its work

with one train of cars, and then running the train back to a switch where it is transferred to a track leading under the charger, or, operating the stripper and charger trolleys on the same overhead track, each being shifted
5 back and forth in turn over the cars. The first alternative results in the ingots losing a great quantity of heat before being transferred to the soaking pit. The second alternative is absolutely impractical in actual work due to the fact that the plant has to be constructed with the
10 proper amount of extra trackage for the cranes to allow the shifting back and forth, and the further fact that collisions in such rapid operation are frequent. Again the expense is cut down, obviously, in view of the fact that only half of the crew is necessary for the operation
15 of our machine.

Our construction presents quite an advantage over those more intricate machines in which it is designed to have a single set of jaws operated both as stripping tongs and grippers for charging the ingots. These latter devices are, of course, complex, and, therefore,
20 somewhat expensive to construct and keep in repair. But a distinct advantage of our invention is that it per-

mits the use of any type of individual stripper and charging device in common use. In fact with comparatively small alterations our machine can be constructed so as to utilize ingot strippers and chargers which the various plants now have in stock.

Having described our invention, we claim:

1. In combination, a traveling crane supporting a traveling carriage, ingot stripping mechanism and ingot carrying mechanism supported by said carriage, said stripping and carrying mechanisms, being structurally separate from each other. 30

2. In combination, a traveling crane supporting a traveling carriage, an ingot stripper and an ingot carrier separately mounted on said carriage. 35

3. In combination, a traveling crane supporting a traveling carriage, an ingot stripper and an ingot carrier separately mounted on said carriage in a line parallel with the direction of travel of one of the above mentioned traveling members. 40

In testimony whereof, we hereunto affix our signatures in the presence of two witnesses.

JOHN C. CROMWELL.
HORACE W. LASH.

Witnesses:

H. D. SMITH,
J. M. WOODWARD.